REMOVAL

The issuance of the Delivery Order and initiation of immediate removal were prompted by a recognized threat to public health After providing for a contractor to be on site, the primary objectives for clean up were discussed by health officials An outline for tasks and priorities was prepared by the federal on-scene coordinator (OSC) as follows

1 The repacking and overpacking of damaged or leaking packages or drums

2 Clean-up of spilled hazardous liquids and solids by absorption, sweeping, scraping and vacuuming

3 The sorting, organizing and arranging of drums and packages into groups such as small packages, jars, sacks and drums and the further sorting and arranging of drums into knowns and unknowns the knowns arranged in similar groups

4 Identification and sampling

5 Recycling usable chemicals

6 Disposal of contaminated debris and disposal of chemicals which could not be recycled

The ERCS contractor for this site was Environmental Emergency Services (EES), St Louis, Missouri EES was on site at 0800, February 9, 1984 Environmental officials on scene were the following

- Dr William Hope — St Louis Health Commissioner
- Keith Schardein — Missouri Department of Natural Resources
- Gary B Snodgrass — U S EPA, OSC
- John Schilling — Assistant St Louis Health Commissioner
- Ron Arbet — St Louis Health Department
- Arnold Montgomery — St Louis Health Department

In addition to health and environmental officials at the site Dr Hope ordered a 24-hour watch by St Louis police The St Louis Emergency Medical Personnel were on scene during the first day of removal

Repackaging of 20, leaking or damaged, 55-gallon drums or containers was necessary Packaging of at least six bags of dry chemicals was necessary Dust and small debris were swept from floors, cabinets and furniture and dusts were vacuumed from rafters

Spilled liquid chemicals were cleaned from the floor in several areas Spilled chemicals consisted of free flowing liquids in two, 10-square-foot areas and semi-solid gelatinous or sticky (gummy) chemicals

in two (approximate) 100-square-foot areas Chemical stains were cleaned with water and detergent and absorbed with chem-dri (a sawdust type sorbent) Absorbed chemicals and contaminated sorbent were placed in two open top drums along with dust and small debris from sweepings for disposal A representative sample was collected from the debris drums for analysis This data and photographs of spilled chemicals can be found in the Superfund Documentation Section of this report

Large debris including soiled furniture was placed in a 15-cubic-yard dumpster which was placed by the contractor at the rear of the building This dumpster was later transported for disposal to Bob's Home Service, Inc , an EPA-MDNR approved hazardous waste landfill in Wright City, Missouri

After overpacking leaking drums, cleaning up dusts, debris, stains and residues and removing contaminated large debris and furniture, odors in the building were drastically reduced

One vat and one underground tank that were found to contain liquids were pumped to drums, analyzed and later disposed Other vats and one underground tank were found to be empty

The clean-up activity then turned to sorting, identification and sampling Sorting involved separation of labeled drums from unlabeled drums and physically arranging them in a manner for sampling and recycling Bagged chemicals were separated from small bottles and large drums

After identification of drums with labels, unlabeled products had to be identified either by Richard Miller, physical examination or chemical analysis Mr Larry Zelinski, (a former employee) also aided in identification Miller and Zelinski also produced a check and balance to cross reference identity of many labeled and unlabeled chemicals

Analysis of potentially hazardous substances in this facility proceeded with two objectives

1 Analysis for superfund documentation

2 Analysis for recycling and disposal

For superfund documentation, three samples were collected All three samples were collected on, or near, the facility premises and are reported in the "Superfund Documentation" section of this report Analysis for recycling and disposal was carried out on 80 drum samples In order to cut analytical costs (by more than 80%), a full range of organics was not requested for these samples Total costs for 80 analyses was $7,500 (versus over $50,000 for base-neutrals, extractable organics and pesticide fraction by both GCMS and GC methods) Sample identification for recycling was done to verify that any labeled drums of chemicals contained those compounds indicated by the labels

Many of the chemicals in the building were recycled for use by various greater St Louis area municipalities for pest and/or weed control programs Other recyclable chemicals were distributed to various pesticide applicators, after review of their applicable Federal and State licences This action was done in close coordination with Region VII EPA, TSCA and FIFRA officers and Missouri State Agriculture officials Appendix A is a listing of recycled chemicals from this site and the destination of each chemical

All chemicals remaining in the building after recycling were drummed chemicals, fifty-two drums were left Data for analysis of those drums is available in the site file in the Environmental Services Division, Emergency Planning and Response Branch Samples from these remaining drums were composited for additional analysis to determine their suitability for incineration or other disposal

One composite sample was made for incineration and four samples, from four individual drums, were submitted to Rollins Environmental for treatment as five different waste streams The four samples were potassium hydroxide (KOH) waste, trichloroacetic acid waste, hydrochloric acid waste and copper sulphate ($CuSO_4$) waste Incineration on the other 50 composited drum samples (composited to one sample) was based on the common pesticide waste characteristics Figure 5 is a BTU and ash analysis required for incineration at most facilities The site for incineration was chosen based on availability Trade Waste Incinerators (TWI) Incorporated, of Sauget, Illinois Chemical Waste Management of Chicago Illinois, ENSCO, El Dorado, Arkansas and Rollins Environmental Services were all surveyed for possible incineration of the site wastes Only Rollins would accept the wastes in a reasonable time frame Thirty drums were shipped to Rollins on April 5, 1984, and the remaining 24 drums were shipped on April 19, 1984

The on-scene coordinator, or a (TAT) representative, monitored all major activities carried out by the contractor during this removal Labor, equipment, expendable materials, laboratory costs and disposal costs were the major expenditures The following is a summary of project costs to the nearest dollar figure.

*Labor	$11,730
Transportation	4,429
Laboratory	12,579
Equipment Rental	2,050
Materials	3,422
Disposal	7,411
TOTAL	$41,621

* Cost summary does not reflect final vouchers and cost adjustments Final costs are expected to be around $45,000

OVERVIEW

EPA received a report and request for assistance from the Missouri Department of Natural Resources and the Commissioner of Health, St Louis, Missouri EPA Emergency Response Branch Chief notified Gary B Snodgrass of EPA for immediate response After a thorough evaluation, immediate removal documentation was initiated on January 30, 1984, and after proper notification of responsible parties by Administrative Order, a removal was initiated on February 9, 1984 Major actions to stem a threat to public health were accomplished in one week at which time completion of the project awaited laboratory data for disposal, evaluation for removal of contaminated soil at the west end of the site, and an acceptable site for incineration

Considerable effort was spent in finding a site that would accept chemicals for incineration Many commercial incinerators have been severely backed up and two incinerators in Illinois were officially prohibited from accepting wastes at the time of this project

Interface between many agencies, departments and EPA Region VII programs was necessary The success of recycling was made possible by OSC coordination with EPA Region VII TSCA program officials who advised on registration of formulators that could accept pesticides State Department of Agriculture officials advised on current licensing for the recycling of many forest and crop products

City health officials provided security at night, emergency medical backup and help in finding sources within local government for the recycling of numerous chemicals Missouri Department of Natural Resources personnel were instrumental in notification, monitoring and documentation on site

Overall cost effectiveness of the operation was aided by the recycling effort Average cost per pound, including composite analysis, transportation and disposal of these chemicals, was $.048 for debris and $.52 for liquid or solid chemical 15,585 pounds of liquid and solid chemicals were recycled for a savings of $8,104.20 Approximately $5,000* was saved on analytical costs

* This figure is 10% of $50,000 estimated costs for analysis of 80 samples for a full range of organics Actual savings may be higher